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(54) Topical pharmaceutical compositions for use in odontostomatology.

(57) Pharmaceutical compositions for topical use in odontostomatology containing allantoin and sulfur as active principles, show enhanced healing and regenerative effects.

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## TOPICAL PHARMACEUTICAL COMPOSITIONS FOR USE IN ODONTOSTOMATOLOGY

The invention refers to pharmaceutical compositions for topical use in odontostomatology, containing as the active principles allantoin and elemental sulfur. The elemental sulfur is known to exist in different forms (for instance: cyclohexasulfur, cycloheptasulfur,  $\alpha$ ,  $\beta$  or  $\gamma$  sulfur, cubic cyclooctasulfur, cyclodecasulfur, cyclododecasulfur, fibrous sulfur, insoluble sulfur, colloidal sulfur, etc.); it should be understood that the invention comprises all said forms.

The pharmaceutical compositions object of the invention, for their peculiar properties, are particularly useful in the topical therapy of the odontostomatologic diseases such as gingivitis, stomatitis, inflammatory and ulcerative lesions of the oral cavity, parodontopathies, etc.

Both allantoin and sulfur are already used in therapy: allantoin is an effective stimulating agent of the cutaneous tissues regeneration and exhibits re-epithelizing and keratoplastic properties; sulfur exerts a stimulation effect in the tissular metabolic process, has trofic action on the capillary walls and exhibits a repairing and healing activity.

The combination of allantoin and sulfur in the pharmaceutical compositions of the invention surprisingly shows an higher therapeutic effect in comparison with that obtainable with the single components used separately; this may probably be due to a synergistic interction of the two substance.

Said surprising therapeutic characteristic gives to the pharmaceutical compositions of the invention advantageous therapeutic properties, which make them particularly useful in human and veterinary medicine for the treatment of gingival diseases and generally of the oral mucosa, whichever is the etiology causing them and whenever an effective healing, regenerative and lenitive therapy is desired.

In the compositions object of the present invention, the ratio of allantoin and sulfur concentrations is not critical and substantially depends on the considered pharmaceutical form. Generally, allantoin will be present in concentrations from 0.1 to 10%, while the sulfur concentration may be as high as 99.9%.

According to the desired pharmaceutical form, suitable excipients may be used provided that they are compatible; for the powder preparations, for instance, talc, lactose, clay, flavours, dyes, etc. may be used.

For the gel, paste or liquid preparations suitable suspending, aggregating, emulsionating, dispersing, flavouring, colouring agents etc., may be used. Both the different forms and the excipient substances are in any way already known in the considered prior art.

The pharmaceutical compositions of the invention may be added with complementar therapeutic substances such as vitamins (ascorbates, panthotenates, tocopherols, B complex, biotine, Vitamin A), antibiotics, chemotherapics, antiseptic agents, analgesics, antiphlogistic, antimycotic, antiviral, astringent, regulating agents of the oral pH, carriers of organic sulfur.

The following examples further illustrate the invention without limiting it in any way.

### EXAMPLE 1

Allantoin	0.5	g
Ventilated sulfur	99.5	g

Preparation: the mixture is throughly mixed and is then sieved through a fine sieve.

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EXAMPLE\_2

	Allantoin	5	g
15	Ventilated sulfur	50	g
	Excipient: rice starch	q.s. to 100	g.

EXAMPLE\_3

20	Allantoin	5	g
	Ventilated sulfur	45	g
	Sodium chloride	3	g
25	Excipients:		
	Bolus Alba kaolin	30	g
30	Rice starch	q.s. to 100	g.

EXAMPLE\_4

	Allantoin	1.48	g
35	Ventilated sulfur	40	g
	Ascorbic acid (Vit. C)	1.76	g
	Excipient: rice starch	q.s. to 100	g.

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EXAMPLE\_5

	Allantoin	1.58	g
	Ventilated sulfur	40	g
45	Panthotenate calcium	4.76	g
	Excipient: rice starch	q.s. to 100	g.

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EXAMPLE\_6

5	Allantoin	0.5	g
	Ventilated sulfur	20	g
	Sodium bicarbonate	5	g
10	Excipients:		
	Hydrated colloidal silica	1.5	g
	Peppermint alcoholate	0.2	g
15	Rice starch	q.s. to	100 g.

EXAMPLE\_7

20	Allantoin	5	g
	Ventilated sulfur	45	g
	Lidocaine hydrochloride	1	g
25	Excipient: rice starch	q.s. to	100 g.

EXAMPLE\_8

	Allantoin	0.5	g
30	Ventilated sulfur	45	g
	Cetyltrimethylammonium p-toluensulfonate	0.010	g
	Excipients:		
35	Lactose	30	g
	Rice starch	q.s. to	100 g.

EXAMPLE\_9

40	Allantoin	1.58	g
	Ventilated sulfur	30	g
	Glycirretinic acid	4.70	g
45	Excipient: rice starch	q.s. to	100 g.

EXAMPLE\_10

50	Allantoin	1.58	g
	Ventilated sulfur	30	g
	Methionine	1.49	g
55	Excipient: rice starch	q.s. to	100 g.

EXAMPLE\_11

5	Allantoin	1.58 g
	Ventilated sulfur	30 g
	Clorhexidine	5.05 g
10	Excipient: rice starch q.s. to	100 g.

EXAMPLE\_12

15	Allantoin	0.5 g
	Ventilated sulfur	3 g
	Nystatin	200.000 U.
20	Excipient: rice starch q.s. to	5 g.

EXAMPLE\_13

	Allantoin	0.5 g
25	Ventilated sulfur	30 g
	Benzidamine hydrochloride	0.100 g
	Excipient: rice starch q.s. to	100 g.

EXAMPLE\_14

	Allantoin	5 g
	Ventilated sulfur	30 g
35	Dexamethasone	0.05 g
	Excipient: rice starch q.s. to	100 g.

EXAMPLE\_15

40	Allantoin	5 g
	Ventilated sulfur	30 g
	Idoxuridine	1.5 g
45	Neomycin sulfate	0.6 g
	Excipient: rice starch q.s. to	100 g.

EXAMPLE\_16

50	Allantoin	5 g
	Ventilated sulfur	30 g
55	Zinc citrate	0.1 g

Excipient: rice starch      q.s. to      100      g.

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EXAMPLE 17

Allantoin      5      g

Ventilated sulfur      30      g

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Aluminium dihydroxyallantoinate      5      g

Excipient: rice starch      q.s. to      100      g.

EXAMPLE 18

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Allantoin      0.5      g

Ventilated sulfur      35      g

Excipients:

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Sodium carboxymethylcellulose      1.5      g

Glycerin      13      g

Peppermint alcoholate      0.2      g

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Preserved water      q.s. to      100      g.

30      Preparation: the water is heated to 70° and the sodium carboxymethylcellulose is added in portions.  
The gel so obtained is added with glycerine, sulfur and allantoin in a blade-mixer.  
When the paste is at room temperature, the peppermint alcoholate is added.

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EXAMPLE 19

Allantoin      0.5      g

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Ventilated sulfur      35      g

Sodium chloride      3      g

Hexetine      1      g

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Excipients:

Glycerin      24      g

Colloidal silica      1.5      g

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Sodium carboxymethylcellulose      1.5      g

Methyl p-hydroxybenzoate      0.065      g

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	Propyl p-hydroxybenzoate	0.035 g
5	Vanilline	0.004 g
	Calcium and aluminium lake	0.015 g
	Sterile water	q.s. to 100 g.

EXAMPLE 20

	Allantoin	0.5 g
	Ventilated sulfur	10 g
15	Excipients:	
	Liquorice extract	1.5 g
	Peppermint essential oil	0.2 g
20	Eucalyptus essential oil	0.2 g
	Sorbitol	5 g
	Glycerin	10 g
25	Hydrated colloidal silica	2.5 g
	Sodium carboxymethylcellulose	0.5 g
30	Preserved water	q.s. to 100 g.

**Claims**

35 1. Oral pharmaceutical compositions for the treatment of gingival diseases or of the oral mucosa consisting of allantoin and sulfur in admixture with suitable inert excipients.

2. Compositions according to claim 1, wherein sulfur is present as  $\alpha$ ,  $\beta$  or  $\gamma$  sulfur, cyclohexasulfur, cycloheptasulfur, cubic cyclooctasulfur, cyclododecasulfur, fibrous sulfur, insoluble sulfur or colloidal sulfur.

3. Compositions according to claims 1 or 2 wherein allantoin is present in concentrations from 0.1 to 10% and sulfur up to 99.9%.

40 4. Compositions according to any one of the preceeding claims in liquid forms or in gel, paste or powder form.

5. Compositions according to any one of the previous claim containing other active principle having complementary therapeutic activity.



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 26-06-1987	Examiner PEETERS J.C.
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons &amp; : member of the same patent family, corresponding document</p>			





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